

Title (en)

METHOD OF DETECTING AN OPERATING CONDITION OF A BATTERY SYSTEM, WHICH MAY LEAD TO A THERMAL RUNAWAY

Title (de)

VERFAHREN ZUR DETEKTION EINES BETRIEBSZUSTANDES EINES BATTERIESYSTEMS, DAS ZU THERMISCHEM DURCHGEHEN FÜHREN KANN

Title (fr)

PROCÉDÉ DE DÉTECTION D'UN ÉTAT DE FONCTIONNEMENT D'UN SYSTÈME DE BATTERIE POUVANT DONNER LIEU À UN EMBALLEMENT THERMIQUE

Publication

**EP 4144569 A1 20230308 (EN)**

Application

**EP 21194567 A 20210902**

Priority

EP 21194567 A 20210902

Abstract (en)

The present disclosure relates to a method of detecting an abnormal operating condition of a battery system, which may lead to a thermal runaway. The battery system, which performs the detection method, comprises a battery pack including a plurality of battery cells and a cooling system including a pump for circulating a liquid coolant in a cooling circuit, a first heat exchange member integrated into the cooling circuit and thermally contacting the battery cells, and at least one pressure sensor adapted to detect a change in pressure inside the cooling circuit. A battery management system is connected to the pressure sensor and the pump and configured to perform a detection mode including the steps of: step a) detecting an initial pressure with the pressure sensor and switching off the pump for a specified time period, step b) after switching off the pump, capturing the pressure with the pressure sensor, and step c) determining a pressure difference between the initial pressure value and the captured pressure and, when the pressure difference exceeds a predetermined threshold, detecting an abnormal condition that could cause the occurrence of a thermal runaway of the battery pack.

IPC 8 full level

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Citation (applicant)

E. CABRERA-CASTILLO ET AL., JOURNAL OF POWER SOURCES, vol. 324, pages 509 - 520

Citation (search report)

- [I] US 2015191101 A1 20150709 - RAWLINSON PETER DORE [GB]
- [A] EP 3654442 A1 20200520 - 3M INNOVATIVE PROPERTIES CO [US]
- [A] CN 113274669 A 20210820 - SAIC GM WULING AUTOMOBILE CO LTD

Designated contracting state (EPC)

AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

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BA ME

Designated validation state (EPC)

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DOCDB simple family (application)

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